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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/740,615	12/18/2000	Sheldon Schultz	52003-8001.US01	1773
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PERKINS COIE LLP P.O. BOX 2168 MENLO PARK, CA 94026			EXAMINER LAM, ANN Y	
			ART UNIT 1641	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/740,615	Applicant(s) SCHULTZ ET AL.	
	Examiner Ann Y. Lam	Art Unit 1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-26, 28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-26, 28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19, 22, 25, 26, 28, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garini et al., 5,817,462, in view of Hillner et al., 5,479,024.

As to claims 19, 26, 28 and 29, Garini et al. disclose detector elements which produces a signal which is a particular linear combination of light intensity emitted by a pixel at different wavelengths (col. 7, lines 32-34), such apparatus being used for obtaining a spectrum of each pixel of a cell for example (col. 7, lines 9-13). Garini et al. also teach that using the detection to form a spectral image of the intensity of a set of pixels as function of wavelength, wherein the image plane can be used for displaying the gray scale image that results after applying a spectral analysis algorithm, over a desired spectral region, at every image pixel (col. 17, lines 15-19). Garini et al. also teach that it is possible to display the spectral image as a multicolor image utilizing artificial colors to highlight and map important features, the image being computed from the spectral image database (col. 17, lines 23-31.) Garini et al. also teach providing the desired excitation wavelengths simultaneously (col. 24, lines 41-51) and that such a device is useful for identification of multiple fluorophores for example (col. 24, lines 41 -

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col. 25, line 15.) A light source and sensor (CCD) for producing an image is disclosed in column 29, lines 31-43.) Thus Garini et al. disclose a detector for measuring light intensity from entities in a field at a plurality of different illuminating light frequencies, and an image processor (computer) for constructing from the signals received, from the detector, values (i.e., the intensities and/or wavelengths detected) of a spectral emission characteristic of entities in the field based on the light intensity measured at each of the different illuminating frequencies. An output means for displaying information about the field is implicit in the disclosure of the image at every image pixel. As to a discriminator means recited by Applicant, this is also disclosed by Garini et al. as the computation by a processor. More specifically, Garini et al. teach a ratio image computation and display. The algorithm computes the ratio between the intensities at two different wavelengths for every pixel of the spectral image and paints each of the pixels in a lighter or darker artificial color accordingly. For example, it paints the pixel bright for high ratio, and dark for low ratio, to display distributions of spectrally sensitive materials (col. 18, line 66 – col. 19, line 6.) Garini et al. disclose that in all of the spectral image analysis methods disclosed, algorithms are applied to the spectral data (col. 19, lines 9-13) and that a procedure making use of both spectral and spatial data can be used to differentiate cells for example by their characteristic spectral signature (col. 19, lines 35-41.) Thus Garini et al. disclose a discriminator means (a computer processor) that discriminates one type of entity from other entities (i.e., those having different spectral characteristics/wavelengths) over different spectral wavelengths.

However, while Garini et al. disclose detection and imaging of spectra in general, including spectral from fluorescent probes for example, Garini et al. do not disclose detection and imaging of spectra from plasmon resonant entities.

However, Hillner et al. teach that electromagnetic fields in the vicinity of small metal particle can be enhanced by surface plasmon modes in the particle. The enhanced electromagnetic fields enhance Raman scattering and the enhanced fields can be used as local probes (col. 8, lines 4-13). Hillner et al. also disclose the scattering effect of plasmons (col. 8, lines 21-27.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize plasmons as a specific type of fluorescent probe as generally disclosed by Garini et al. because Hillner et al. teach that plasmons provide the advantage of enhancing electromagnetic fields as would be desirable for more readily detecting the entity. The skilled artisan would have reasonable expectation of success because the plasmons (which is the same as Applicant's plasmon resonant entities) operate in a similar manner as fluorescent labels, requiring a light source and detector, and emit a wavelength which can thus produce an image.

As to claim 22, the detector is a two-dimensional photodetector array as recited by Applicants (see Garini et al., col. 7 line 24.)

As to claim 25, a means for moving the filed in an x-y plane relative to a light source is disclosed by Garini et al. (col. 53, lines 21-23.)

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garini et al., 5,817,462, in view of Hillner et al., 5,479,024, and further in view of Shafer et al., 5,717,518.

Garini et al. in view of Hillner et al. disclose the invention substantially as claimed (see above), except for the light source including a bright field/dark field lens.

However, Shafer et al. teach that UV objective lens that is useful in bright field, dark field and fluorescence techniques, among others, and that some or all of these techniques can be used simultaneously or in sequence within the same objective lens (col. 10, line 64 – col. 11, line 6.) The object lens is disclosed as providing the advantage of a large field size which allows for high speed inspection of a wafer surface (col. 9, lines 28-34) and the advantage of multi-wavelength capability in contrast to prior UV objectives which have relatively narrow band designs (col. 9, lines 41-45). The object lens can be used with CCDs, and can be used in the analysis of fluorescence to determine compositions of materials (col. 10, lines 25-36.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the UV lens disclosed by Shafer et al. as the lens generally disclosed by King et al., because Shafer et al. teach that the disclosed lens provides advantages such as providing a large field size which allows for high speed inspection of a wafer surface and the advantage of multi-wavelength capability in contrast to prior UV objectives which have relatively narrow band designs. Moreover, the skilled artisan would have reasonable expectation of success in utilizing the lens disclosed by Shafer et al. in the King et al.

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device because Shafer et al. teach that the lens can be used with CCD detectors (such as the CCD detector in the King et al. system) and can be used to analyze fluorescence (such as the fluorescence analysis in the King et al. invention.)

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garini et al., 5,817,462, in view of Hillner et al., 5,479,024, and further in view of King et al., 5,633,724.

Garini et al. in view of Hillner et al. disclose the invention substantially as claimed (see above), except for the detector being a two-dimensional array of optical fibers. Garini et al. only disclose a two-dimensional photodetector array in general (see Garini et al., col. 7 line 24.)

However, King et al. teach a device with a light source, detector and processor for forming an image from spectral characteristics from entities such as fluorescent probes (col. 6, lines 42-54). King et al. further disclose that the optical detector includes a two-dimensional array of optical fibers (450, see column 14, lines 20-25) whose output is aligned so as to constitute a line source that is sent into a grating or prism (104, see column 5, line 6). Since Garini et al. only disclose a two-dimensional photodetector in general and do not limit the invention to use to any other specific type of two-dimensional photodetector, the skilled artisan would look to the art, such as the King et al. reference, for a specific type of two-dimensional photodetector to utilize as the specific type of two-dimensional photodetector generally disclosed by Garini et al.

Response to Arguments

Applicants' arguments in have been considered and are persuasive to the extent that the amendment has overcome the 102 rejection under King et al. However, a new grounds of rejection is made under Garini et al. as necessitated by the amendment.

Conclusion


Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann Y. Lam whose telephone number is 571-272-0822. The examiner can normally be reached on Mon.-Fri. 10-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Ann Y. Lam
Primary Patent Examiner